

Shaughnessy No.: 128976

NOV 19 1990

Date Out of EFGWB:

TO: Robert J. Taylor
Product Manager #
Registration Division (H7505C)

FROM: Emil Regelman, Supervisory Chemist
Environmental Chemistry Review Section #2
Environmental Fate and Ground Water Branch, EFED (H7507C)

THRU: Henry M. Jacoby, Chief
Environmental Fate and Ground Water Branch/EFED (H7507C)

Attached, please find the EFGWB review of:

Reg./File #: 059639-GI

Common Name: Uniconazole
(S)-(+)-[(E)-1-(p-chlorophenyl)-4,4-dimethyl-2-(1,2,4-
Chemical Name: triazo-1-yl)-pent-1-ene-3-ol]

Type product: Plant growth regulator
PRUNIT (tree growth regulator)
Product Name: SUMAGIC (ornamental plant growth regulator)

Company Name: Valent U.S.A. Corporation
Response to Registration Standard (clarification of sign of
Purpose: rotation of active ingredient; clarification of Chemical
Abstracts Registry Numbers)

Date Received: 4/5/90 EFGWB #: 91-0012

Action Code: 116 Total Reviewing Time (decimal days): 0.5

Deferrals to: _____ Ecological Effects Branch, EFED
_____ Science Integration & Policy Staff, EFED
_____ Non-Dietary Exposure Branch, HED
_____ Dietary Exposure Branch, HED
_____ Toxicology Branch I, HED
_____ Toxicology Branch II, HED

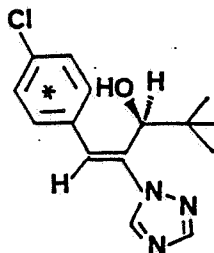
1. CHEMICAL:

Common Name: Uniconazole

Chemical Name: (S)-(+)-[(E)-1-(p-chlorophenyl)-4,4-dimethyl-2-(1,2,4-triazo-1-yl)-pent-1-ene-3-ol]

Chemical Abstracts Registry #: 83567-17-4

Chemical Structure:



Physical/Chemical properties of the (S)-(E)-isomer (active ingredient):

Empirical Formula: $C_{15}H_{18}ClN_3O$

Molecular Weight: 291.5

Physical State and Color: White crystalline powder

Melting Point: 159-160 C

Density: 1.28 (?) (21.5 C)

Vapor Pressure: 4.0×10^{-5} mmHg at 20C

Solubility:

Water.....	8.4 ± 0.2 ppm (25 C)
Methanol.....	10-20 w/w, 21 C
Acetone.....	10-20 w/w, 21 C
Acetonitrile.....	1-5 w/w, 21 C
DMF.....	33-50 w/w, 21 C
Chloroform.....	10-20 w/w, 21 C

Octanol/Water Partition Coefficient:

$\log p_{ow} = 3.77$ (for TGAI), temperature unspecified

2. STUDY/ACTION TYPE:

Response to deficiencies noted in Science Chapter (1/31/89).

3. STUDY IDENTIFICATION:

- Letter of H. Oshita (Valent) dated 8/28/90. Copy attached
- Response to EPA's review of "Vapor Phase Photodegradation of XE-1019D" (MRID #40820501). Authors of original study: D. Teeter and B. Bowman. Reviewed 1/26/89.
Authors of response: T. Katagi, K. Nambu, and H. Yamada. Completed 9/5/90 by Sumitomo Chemical Company, Ltd. Hyogo, Japan. Laboratory Project ID: IIM-00-0039.

4. REVIEWED BY:

Silvia C. Termes, Chemist
Review Section #2
OPP/EFED/EFGWB

Signature: 

Date: October 29, 1990

5. APPROVED BY:

Emil Regelman
Supervisory Chemist
Review Section #2
OPP/EFED/EFGWB

Signature: 

Date: NOV 19 1990

6. CONCLUSIONS:

The registrant has clarified that the sign of rotation of the active ingredient [(S)-(E)]-isomer is "(+)". Therefore, the sign of rotation "(+)" should be included in the chemical name of the active ingredient stated in the label.

The registrant has also clarified the discrepancies in Chemical Abstracts Registry Numbers noted in the review of environmental fate studies reviewed on 1/31/90:

<u>CAS No.</u>	<u>Isomer</u>
83657-22-1	(E)- (+, -) That is, the racemic mixture
83657-17-4	(E)- (+)- (S) The active ingredient

All environmental fate data requirements for nonfood greenhouse uses have been fulfilled, as indicated in the EFGWB Science Chapter of 1/31/89.

Data Requirements

MRID Numbers

161-1 Hydrolysis	40345427; 40573601
162-1 Aerobic soil metabolism	40345428; 40573602
163-1 Mobility in soil	40345429; 40573602; 40724301
163-2 Volatility from soil (lab.)	40462604

In addition, the registrant has also submitted an acceptable photodegradation in air study (40820501; data contained in the present review).

As indicated in the 1/31/89 Science Chapter, the environmental fate chemistry of uniconazole is characterized by the tendency of this chemical to persist in aqueous media and in soils and for its leaching potential in soils of low organic matter content.

In the same Science Chapter, EFGWB clearly stated its concerns about uses of uniconazole under field conditions based on the persistence and mobility of uniconazole in soils. Because no terrestrial field dissipation data are available for uniconazole, EFGWB does not recommend any field uses of uniconazole. In addition uniconazole has an octanol/water partition coefficient of ca. 10^4 , which indicates the potential for accumulation of this chemical in lipophilic material.

Even if the use of this chemical is restricted to greenhouse uses only, EFGWB has concerns that the chemical can potentially accumulate on the "floor" of the greenhouse. If the "floor" of the greenhouse is a soil of low-organic matter content (for example, sandy soils) and/or are located in areas of low-depth water tables (for example, in Florida), then the risk of leaching to groundwater can potentially increase. Runoff from greenhouses to surface waters is also a potential problem (see above comment about potential for accumulation in lipophilic material).

Therefore, EFGWB recommends that the registrant includes a precautionary statement and/or a geographical area restriction to prevent groundwater and surface water contamination.

It is not clear if the use of uniconazole as a tree growth regulator (as the product PRUNIT) is for uses in greenhouses. According to the data reviewed for an EUP (12/21/87), the product was to be pressure-injected into the tree trunks; however, it was not clear if the trees were to be in greenhouses or in fields.

7. RECOMMENDATIONS:

The registrant should be informed of the following:

- a. All data requirements for greenhouse nonfood uses have been fulfilled.
- b. The sign of rotation of the active ingredient must be included in the chemical name of the active ingredient appearing in the label.
- c. EFGWB has concerns about any field uses of this chemical.
- d. Restrictions and/or precautionary statements for uses in greenhouses with a soil "floor" must be included in the label (see CONCLUSIONS section).
- e. The registrant should clarify if PRUNIT (tree growth regulator) is to be used in greenhouses.

8. BACKGROUND:

According to the information submitted by the registrant at the time the Science Chapter was prepared (1/31/89), the plant-growth regulator SUMAGIC is a formulated liquid containing 0.05% of [(S)-(+)-(E)]-isomer (0.0064 oz

a.i./gal; 0.5 g a.i./L). This product is to be used in greenhouses only to retard the growth of ornamental plants. Application rates vary with the type of plant to be treated and the geographical area.

SUMAGIC is recommended for the following uses:

- a. Poinsettias (foliar spray)
- b. Bedding plants such as argeratum, celosia, coleus, dahlia, impatiens, marigold, pansy, periwinkle, petunia, salvia, and snapdragon (foliar spray)
- c. Easter lilies (foliar spray; soil drench)
- d. Chrysanthemums (foliar spray)
- e. Woody ornamentals such as Photinia fraseri (foliar spray)

Uses in Florida are anticipated.

9. DISCUSSION OF INDIVIDUAL STUDIES:

No studies were submitted.

10. COMPLETION OF ONE-LINER:

One-Liner has been created for this chemical at this time.

11. CBI APPENDIX:

No CBI.

RIN 0633-94 UNICONAZOLE REVIEW
(128976)

Page _____ is not included in this copy.

Pages 6 through 9 are not included.

The material not included contains the following type of information:

- ____ Identity of product inert ingredients.
 - ____ Identity of product impurities.
 - ____ Description of the product manufacturing process.
 - ____ Description of quality control procedures.
 - ____ Identity of the source of product ingredients.
 - ____ Sales or other commercial/financial information.
 - ____ A draft product label.
 - ____ The product confidential statement of formula.
 - ____ Information about a pending registration action.
 - ☒ FIFRA registration data.
 - ____ The document is a duplicate of page(s) _____.
 - ____ The document is not responsive to the request.
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The information not included is generally considered confidential by product registrants. If you have any questions, please contact the individual who prepared the response to your request.
